

Claims

1. A process for manufacturing a radiation heating structure, the structure comprising:

- 5       - a heating layer comprising at least one electrical resistor intended to be electrically powered in order to produce Joule heating;
- a radiating layer; and
- a substantially thermally insulating layer,
- 10 the insulating layer and the radiating layer being fixed on either side of the heating layer,
- in which process:

      a) a laminate comprising at least said electrical resistor and reinforcements is introduced into a mold;

15 and

      b) injected into the mold:

- via an opening formed in a first wall of the mold opposite one face of the laminate intended to form the radiating layer, is a
- 20 first resin that is filled with radiating additives and can be cured in the mold; and
- via an opening formed in a second wall of the mold opposite one face of the laminate intended to form the insulating layer, is a
- 25 second resin that is more fluid than the first resin and can be cured in the mold.

2. The process as claimed in claim 1, in which said mold is a pultrusion mold having an entry end and an

30 exit end and in which, in step b), said laminate is made to advance between the two ends of the mold while said first and second resins are being injected, said advance being sufficiently rapid to limit any diffusion of the radiating additives into the second wall of the

35 mold.

3. The process as claimed in claim 2, in which the respective injection rates of the first and second

resins are chosen according to the speed of advance of said laminate through the mold and so as to limit any diffusion of the radiating additives into said second wall of the mold, while ensuring diffusion of the  
5 radiating additives into the heating layer.

4. The process as claimed in one of the preceding claims, in which said laminate furthermore includes a thermal insulator intended to be embedded in the second  
10 resin, this thermal insulator being placed, in said laminate, facing said second wall of the mold in order to form said insulating layer.

5. The process as claimed in one of the preceding claims, in which, when the insulating layer and the radiating layer are each reinforced, said laminate  
15 comprises:

- reinforcements;
- at least one electrical resistor; and
- 20 - reinforcements.

6. The process as claimed in claim 5, taken in combination with claim 4, in which said laminate  
25 comprises:

- reinforcements;
- at least one electrical resistor;
- reinforcements; and
- a thermal insulator.

30 7. The process as claimed in either of claims 4 and 6, in which the thermal insulator is a sheet of mineral wool, such as rock wool.

8. The process as claimed in one of the preceding  
35 claims, in which the second resin includes insulating additives.

9. The process as claimed in one of the preceding claims, in which the radiating additives are plaster

particles.

10. The process as claimed in one of the preceding claims, in which said reinforcements are fibers, such  
5 as glass fibers.

11. The process as claimed in one of the preceding claims, in which said electrical resistor consists of a network of metal wires.

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12. The process as claimed in one of claims 1 to 10, in which said electrical resistor consists of a fabric of at least partly electrically conductive fibers.

15 13. The process as claimed in one of claims 1 to 10, in which said electrical resistor consists of a screen-printed film.

20 14. The process as claimed in one of the preceding claims, in which said first and second resins are thermoplastics.

15. A mold for implementing the process as claimed in one of claims 1 to 14, characterized in that it  
25 comprises:

- a first wall and a second wall opposite said first wall;

- first means for injecting a first resin, which can be cured in the mold and is filled with radiating  
30 additives, via a first opening in the mold formed in said first wall; and

- second means for injecting a second resin, which can be cured in the mold and is more fluid than the first resin, via a second opening formed in said  
35 second wall.

16. The mold as claimed in claim 15, characterized in that it furthermore includes an entry end and an exit end in order to carry out the manufacturing process as

claimed in one of claims 2 to 14 by pultrusion.

17. A radiation heating structure, characterized in that it comprises at least:

- 5       - a heating layer comprising at least one electrical resistor intended to be electrically powered in order to produce Joule heating;
  - a radiating layer, comprising predominantly radiating additives; and
  - 10       - a thermally insulating layer,
- the insulating layer and the radiating layer being placed on either side of the heating layer.

18. The heating structure as claimed in claim 17,  
15 characterized in that the structure is substantially in the form of a sheet, with an insulating face and, opposite it, a radiation heating face.

19. The heating structure as claimed in either of  
20 claims 17 and 18, characterized in that the insulating layer and the radiating layer include reinforcing fibers.